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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,093	08/09/2001	Timothy B. Murray	PSE 6612	4141

321 7590 12/12/2003

SENNIGER POWERS LEAVITT AND ROEDEL  
ONE METROPOLITAN SQUARE  
16TH FLOOR  
ST LOUIS, MO 63102

EXAMINER

SAWHNEY, HARGOBIND S

ART UNIT	PAPER NUMBER
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2875

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 09/927,093	<b>Applicant(s)</b> MURRAY ET AL.	
	<b>Examiner</b> Hargobind S Sawhney	<b>Art Unit</b> 2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 12 and 21-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10, 11, 13-20, 47-49 is/are rejected.
- 7) ☒ Claim(s) 8, 9 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4, 5</u> | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. The amendment filed on August 28, 2003 has been entered. Accordingly;

- Claim 1, 4, 6, 8, 13, 15 and 19 have been amended;
- Claims 12 and 21-46 have been cancelled; and
- New claims 47-49 have been added.

2. The non-final action mailed May 28, 2003 includes an erroneous identification of the prior art considered for the 35 U.S.C. 103 (a) rejection of claims 9 and 16.

Therefore, the above-indicated non-final action, including allowability, has been withdrawn. This non-final office action repeats the election requirements, election of claims 1-11 and 13-20 by the attorney, and includes the needed corrections. In addition, this non-final office action has examined all claims elected respective to the Election/restriction requirements and amended according to the amendment filed on August 28, 2003.

3. The indicated allowability of claims 3-5, 13-15, 17 and 20 is withdrawn in view of the newly discovered reference(s) to Hochstein (US Patent No.: 5,857,767) and Kaneko (Japanese Patent No.: JP 2002 301027). Rejections based on the newly cited reference(s) follow.

***Election/Restrictions***

4. This application contains claims directed to the following patentably distinct species of the claimed invention:

Species I     Figures 1-4

Species II    Figures 5-7

Species III   Figures 8-11

Species IV    Figure 12

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claim 1 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Art Unit: 2875

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

5. During a telephone conversation with Mr. Robert Bain, the attorney, on May 9, 2003, a provisional election was made without traverse to prosecute the invention of Figures 1-4, claims 1-11 and 13-20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12 and 21- 46 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1,2,6,7, 10, 11, 13, 16, 18 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Worsdell et al. (International Publication No.: WO 00/71417 A1) in view of Trentelman (US Patent No.: 6,429,581 B1).

Art Unit: 2875

Regarding claims 1, Worsdell et al. (International Publication No.: WO 00/71417

A1) discloses a vehicular emergency warning light 1 (Figures 2 and 3) comprising:

- a heat sink 11 (Figure 3, page 11, lines 16 and 33-36);
- a light engine 10 (Figure 3, page 11, lines 16) thermally in contact with the heat sink 11, and bearing an array of light emitting diodes (LEDs) 23 (Figure 8, page 12, lines 21-24);
- a lens 3 (Figure 3, page 11, lines 11 and 12) adjacent the light engine 10;
- the lens 3 including a plurality of total internal reflection (TIR) surface configuration (page 14, lines 18-22); and

Regarding Claim 1, Worsdell et al. (International Publication No.: WO 00/71417

A1) teaches an emergency warning light 1 (Figures 2 and 3) comprising the lens 3 with a plurality of total internal reflection (TIR) surface configuration (page 14, lines 118-22).

However, Worsdell does not teach specific structure of the surface configuration of the TIR lens.

On the other hand, Trentelman ('581 B1) discloses a TIR surface configurations (Figure 1) each comprising:

- a convex wall 3, an inner wall 4a and outer wall 4b (Figure 1, column 4, lines 24-29); and
- each of the TIR configurations corresponding to and positioned over the light source 5 (Figure 5, column 4, lines 29-36); and

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the emergency warning light of Worsdell by providing the TIR lens

Art Unit: 2875

as taught by Trentelman ('581 B1) for the benefits and advantage of providing uniform brightness across the lens.

Regarding claims 2, 6, 7, 10 and 16, Worsdell et al. (International Publication

No.: WO 00/71417 A1) in view of Trentelman ('581 B1) further discloses:

- a power supply circuit (Worsdell, not shown, Page 12, lines 25 and 26) supported by the heat sink 11 (Worsdell, Figures 3 and 6, page 12, lines 10 and 11);
- the heat sink 11 further including an integral mounting portion further including an integral mounting portion 6 (Worsdell, Figure 3, page 11, lines 7-10);
- a mounting bracket 5 supporting the heat sink 11, the light engine 10 and the lens 3 (Worsdell, Figure 3) being mounted on a support structure on a vehicle ( not shown, Figure 1 and abstract);
- the lens (Trentelman, Figure 10 having opposing an outer surfaces 1 and an inner surface bearing TIR elements 2 and 3 (Figure 1, column 4, lines 24-29);
- the inner surface with TIR surface configuration facing the light engine 5, and collecting light generated by the light source (Trentelman, Figure 5, column 4, lines 29-36); and
- the outer surface 1 including a distributing surface distributing light collected by the TIR surface 2, 3 (Trentelman, Figure 1, column 4, line 54-56).

Regarding claims 11 and 18, Worsdell et al. (International Publication No.: WO 00/71417 A1) discloses an emergency warning light 1 (Figures 2 and 3) comprising:

- a module including a light engine 10 (Worsdell, Figure 3, page 11, lines 16) thermally in contact with the heat sink 11, and bearing an array of light emitting diodes (LEDs) 23 (Worsdell, Figure 8, page 12, lines 21-24); and
- the heat sink 11 further including an integral mounting portion further 6 (Worsdell, Figure 3, page 11, lines 7-10).

Further, regarding Claim 11, “for the use in light bar having a support” reflects the manner in which a claim apparatus is intended to be employed. This intended use does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitation.

Regarding Claim 13, dependent on claim 1, and Claim 48, Worsdell et al. (International Publication No.: WO 00/71417 A1) in view of Trentelman ('581 B1) discloses an emergency warning light comprising only one set a light engine and a lens and instead of having more than one sets each including a light engines and a lens as claimed by the applicant.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the emergency warning light of Worsdell in view of Trentelman by providing more than one light engines, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art.

8. Claims 3, 4, 14, 15 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Worsdell et al. (International Publication No.: WO 00/71417 A1) in



view of Trentelman (US Patent No.: 6,429,581 B1) as applied to Claim 1 above, and further in view of Pederson (US Patent No.: 6,461,008 B1).

Regarding claims 3 and 4, dependent on claims 1 and 3 respectively, Worsdell et al. (International Publication No.: WO 00/71417 A1) in view of Trentelman ('581 B1) discloses an vehicular emergency warning light including a heat sink, light engine and lens. However, neither combined nor individual teaching of Worsdell et al. (International Publication No.: WO 00/71417 A1) and of Trentelman ('581 B1) discloses a vehicular emergency warning light including:

- a power supply circuit receiving power from a DC voltage source;
- a current feedback control circuit in series with LEDs; and
- a flash control circuit operatively connected to the LEDs.

On the other hand, Pederson ('008 B1) discloses a warning signal light 10 (Figures 3 and 9) comprising:

- a DC voltage supply (Figure 11A, column 18, lines 7-9) for a power supply circuit 50 connected to LEDs 30 (Figure 11A, column 18, lines 8-10);
- the power supply circuit 50 further including a step-up dc-dc voltage conversion circuit included in the power supply circuit 50 (Figure 11A, column 18, lines 31-34) connected to LEDs 30 (Figure 11A and 11B);
- a current feedback control circuit 52 (11A, column 19, lines 8-11) in series with the LEDs 30 providing feedback to the dc-dc voltage conversion circuit;

- a flash control circuit included in the power supply circuit 50 providing flash control signals to the current feedback control circuit 52 (Figures 11A and 11B, column 18, lines 24-31);

Thus, regarding claims 3 and 4, it would be have been obvious to one of ordinary skill in the art at the time of the invention to further modify the emergency warning light of Worsdell in view of Trentelman by providing power supply circuit, current feedback control circuit and flash control circuit as taught by Pederson ('008 B1) for benefit and advantage of providing variable intensity light signals.

Regarding claims 14 and 15, dependent on claims 11 and 14 respectively; and Claim 49, Worsdell et al. (International Publication No.: WO 00/71417 A1) in view of Trentelman ('581 B1) and further in view of Pederson ('008 B1) meets all limitations in the same manner as that for claims 3 and 4 described above.

9. Claims 5 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Worsdell et al. (International Publication No.: WO 00/71417 A1) in view of Trentelman (US Patent No.: 6,429,581 B1) as applied to Claim 1 above, and further in view of Hochstein (US Patent No.: 5,857,767).

Regarding claims 5 and 17, dependent on claims 1 and 11 respectively, Worsdell et al. (International Publication No.: WO 00/71417 A1) ) in view of Trentelman ('581 B1) discloses a vehicular emergency warning light including a heat absorbing substrate bearing LEDs, and thermally communicating with a heat sink.

However, neither combined nor individual teaching of Worsdell et al. (International Publication No.: WO 00/71417 A1) and of Trentelman ('581 B1) teaches

the emergency warning light including a thermal conducting pad positioned between the substrate bearing LEDs.

On the other hand, Hochstein ('767) discloses an LED lamp assembly 10 (Figure 1-4) comprising:

- a plurality of LEDs 20 mounted on a substrate 18 (Figure 4, column 4, lines 40-43); and
- a thermal conductive pad 16 positioned between the substrate 18 and a heat sink 12 (Figure 4, column 4, lines).

It would be obvious to one of ordinary skill in the art at the time of the invention to further modify the emergency warning light of Worsdell in view of Trentelman by providing a combination of substrate, a heat sink and a thermally conductive pad as taught by Hochstein ('767) for benefit and advantage of electrically isolating the thermal sink from the LED bearing substrate.

10. Claims 20 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Worsdell et al. (International Publication No.: WO 00/71417 A1) in view of Trentelman (US Patent No.: 6,429,581 B1) as applied to Claim 11 above, and further in view of Kaneko (Japanese Patent No.: JP 2002 301027).

Regarding claims 20 and 47, dependent on claims 11 and 1 respectively, Worsdell et al. (International Publication No.: WO 00/71417 A1) in view of Trentelman ('581 B1) discloses an vehicular emergency warning light comprising a light engine

including an LED string array assembly connected to a power supply (Worsdell, Figure 1, page 12, lines 26).

However, neither combined nor individual teaching of Worsdell et al. (International Publication No.: WO 00/71417 A1) and of Trentelman ('581 B1) discloses an vehicular emergency warning light including a power supply circuit receiving power from a DC voltage source, and including a constant current step up power supply circuit.

On the other hand, Kaneko (Japanese Patent No.: JP 2002 301027) discloses an LED based endoscope comprising:

- LEDs 51-66 being (Figures 1 and 5, English translated abstract) connected to a DC power supply 100- battery-powered; and
- the DC power circuit 100 including a step-up circuit 101, and being connected to constant current control circuit 201-206.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to further modify the emergency warning light of Worsdell in view of Trentelman by providing the power supply circuit in combination with a constant control circuit as taught by Kaneko for the benefits and advantages of enhancing reliability of illumination light emitted from the LED sources.

***Allowable Subject Matter***

11. Claims 8, 9 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record, Worsdell et al. (International Publication No.: WO 00/71417 A1) and Trentelman (US Patent No.: 6,429,581 B1), fails to show or suggest the applicant's invention as claimed. Specifically, the prior art of record does not disclose proper motivation for combining:

- a TIR surfaces having at least one internal runner combined with the TIR configurations each including a convex wall, an inner sidewall, an outer sidewall as recited in claims 8 and 19;

Claim 9 is necessarily objected because of its dependency on the objected base Claim 8.

***Response to Amendment***

12. Applicant's arguments filed on August 28, 2003 with respect to the 35 U.S.C. 102(a) rejections of claims 1,2,6,7 and 11; and 35 U.S.C. 103(a) rejections of claims 10 and 16 have been fully considered but they are moot in view of the withdrawal the previous non-final action mailed May 28, 2003.

**Conclusion**

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tsukii (Japanese Patent No.: JP 2001 326703 A) discloses a LED lamp comprising some of the claimed features claimed by the applicant.


14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hargobind S Sawhney whose telephone number is 703-306-5909. The examiner can normally be reached on 6:15 - 2:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 703-305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306/7724 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2956.

HSS

11/24, 2003

  
Sandra O'Shea  
Supervisory Patent Examiner  
Technology Center 2800